

FORM PTO-101 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		ATTORNEY'S DOCKET NUMBER: NO15.12PC U.S. APPLN. NO. (if known, see 37 CFR 1.51) 09/913590
INTERNATIONAL APPLICATION NO.: PCT/FR00/0626	INTERNATIONAL FILING DATE: 17 FEBRUARY 2000	PRIORITY DATE CLAIMED: 17 FEBRUARY 1999
TITLE OF INVENTION: METHOD OF CREATING A LINK BETWEEN A PUBLISHER AND USERS		
APPLICANT(S) FOR DO/EO/US: Dominique PAVLIN, Iain WALLACE, Bertrand LEVAVASSEUR, Christophe BOUILHOL		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
1. <input checked="" type="checkbox"/>	This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.	
2. <input type="checkbox"/>	This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.	
3. <input checked="" type="checkbox"/>	This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).	
4. <input checked="" type="checkbox"/>	A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.	
5. <input checked="" type="checkbox"/>	A copy of the International Application as filed (35 U.S.C. 371(c)(2))	
6. <input checked="" type="checkbox"/>	a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).	
7. <input type="checkbox"/>	b. <input type="checkbox"/> has been transmitted by the International Bureau. (see attached copy of PCT/IB/308)	
8. <input type="checkbox"/>	c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).	
9. <input checked="" type="checkbox"/>	A translation of the International Application into English (35 U.S.C. 371(c)(2)).	
10. <input type="checkbox"/>	Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).	
11. <input type="checkbox"/>	a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).	
12. <input type="checkbox"/>	b. <input type="checkbox"/> have been transmitted by the International Bureau.	
13. <input type="checkbox"/>	c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.	
14. <input type="checkbox"/>	d. <input type="checkbox"/> have not been made and will not be made.	
15. <input type="checkbox"/>	A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).	
16. <input checked="" type="checkbox"/>	An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).	
17. <input type="checkbox"/>	A translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).	
Item 11. to 16. below concern document(s) or information included:		
18. <input checked="" type="checkbox"/>	An Information Disclosure Statement under 37 CFR 1.97 and 1.98.	
19. <input checked="" type="checkbox"/>	An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.	
20. <input checked="" type="checkbox"/>	A FIRST preliminary amendment.	
21. <input type="checkbox"/>	A SECOND or SUBSEQUENT preliminary amendment.	
22. <input type="checkbox"/>	A substitute specification.	
23. <input type="checkbox"/>	A change of power of attorney and/or address letter.	
24. <input checked="" type="checkbox"/>	Other items or information:	

International Search Report
 PCT/ISA/409
 Application Data Sheet

U.S. APPLICATION NO. 09/913590

INTERNATIONAL APPLICATION NO.
PCT/FR00/00406ATTORNEY'S DOCKET NO.
N015.12PC

CALCULATIONS PTO USE ONLY

- 17.
- ☒
- The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):

Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$ 1,000.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$ 860.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$ 710.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$ 690.00

International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$ 100.00

ENTER APPROPRIATE BASIC FEE AMOUNT = \$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492(e)).

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
total claims	22 - 20 =	2	X \$18.00	\$ 36.00
Independent claims	3 - 3 =	0	X \$20.00	\$
MULTIPLE DEPENDENT CLAIMS(S) (if applicable)			+ \$270.00	\$

TOTAL OF ABOVE CALCULATIONS = \$ 896.00

Reduction of 1/3 for filing by small entity, if applicable: Applicant claims Small Entity Status under 37 CFR 1.27. + \$ 448.00

SUBTOTAL = \$ 448.00

Processing fee of \$130 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.49(f)). \$

TOTAL NATIONAL FEE = \$ 448.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property + \$ 40.00

TOTAL FEES ENCLOSED = \$ 488.00

Amount to be
refunded:

charged:

- a. ☒ A check in the amount of \$ **488.00** to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. **25-0120** in the amount of \$ to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required by 37 CFR 1.16 and 1.17, or credit any overpayment to Deposit Account No. **25-0120**. A duplicate copy of this sheet is enclosed.

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August 16, 2001

By

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PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Dominique PAVLIN et al.

Serial No. (unknown)

Filed herewith

METHOD OF CREATING A LINK
BETWEEN A PUBLISHER AND USERS

PRELIMINARY AMENDMENT

Commissioner for Patents

Washington, D.C. 20231

Sir:

Prior to the first Official Action and calculation of the filing fee, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Please replace the specification as originally filed with the attached substitute specification. The undersigned registered patent attorney hereby states that the substitute specification includes no new matter.

R E M A R K S

Attached hereto is a marked-up version of the changes made to the application by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE." Following entry of the above amendment

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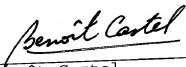
Dominique PAVLIN et al.

by substitution, only claims 1-22 remain pending in this application.

Respectfully submitted,

YOUNG & THOMPSON

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August 16, 2001

0913590-081601

A METHOD OF CREATING A LINK BETWEEN A PUBLISHER AND USERS

FIELD OF THE INVENTION

The present invention relates to a method for creating links between users and a publisher of digital entities (in particular a publisher of software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means; said digital entities being initially designed for use or performance solely on the computer equipment of one user.

10 In the meaning of the present invention a "link" between users and a publisher is a link that makes it possible over a long period of time, or even permanently, to set up a community of users exchanging information between one another and/or with the publisher.

15 The link also serves to protect software against attempted fraud by those seeking to use it while not being entitled to user rights assigned by the publisher.

BACKGROUND OF THE INVENTION

Methods and systems are known that enable a publisher to monitor use of software by a user. For this purpose, some essential portion of the software is transferred to the user only after the user has registered properly with the software supplier. Before acquiring software, a user can thus verify whether the software is of interest. Document US 5 103 476 (David P. Waite et al.) of April 7, 1992 describes such a method

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and such a system. However the non-transferred portion is not used to set up a functional "link" with the other party. It is used to constrain users to regularize their situation as licensees, by forcing users to register with the rights manager. After registration, the missing portion of the software is transferred to the licensee. The concept of a "link", in the meaning of the present invention is thus missing from the David P. Waite et al. document.

Furthermore, the software protection system described in the David P. Waite et al. document relies on the principle of a cipher key. The code of the missing portion is encrypted. The code needs to be decrypted in order to be executed locally, after it has been transferred to the licensee. The encrypted portion of the code becomes vulnerable while it is being executed. It suffices to save a memory image of the decrypted code to be able to use the code freely on other computer equipment. Furthermore, since user rights are centralized at the server, in order to modify the rights of a particular user, it suffices merely to modify parameters on the server.

Software is also known that enables remote functions to be executed and to cause the software to operate in a client/server mode. Document US 5 553 242 (Edward Russell et al.) of September 3, 1996 describes such a

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client/server system. Such client/server systems are not designed to create quasi-permanent "links" in the meaning of the present invention. In addition, such systems do not apply to already-existing software applications produced by software publishers. The software constituting the subject matter of the system described by Edward Russell et al. is directly designed in two portions: one portion for the server station; the other for the client station.

OBJECTS AND SUMMARY OF THE INVENTION

An object of the method of the invention is to create a "link" between at least one user and a publisher and/or distributor of digital entities (in particular software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means. Said digital entities are initially designed for use or performance solely on the computer equipment of one user.

The method of the invention comprises the following steps:

- ~~a step of~~ subdividing said digital entity into two portions, a first portion and a second portion, neither of which portions can be run without the other;

- storing said first portion in a memory zone of a server connected to a computer network;

- transmitting said second portion to at least one user having computer equipment including computer means for implementing said second portion;

- installing said second portion on said computer
5 equipment;

- connecting said computer equipment to said computer network; and

- establishing a functional link between said first portion and said second portion whereby

10 when said second portion is put into operation, it automatically makes a connection via the computer network to said server in order to execute the said missing first portion as stored in said server.

If the method of the invention is compared with the
15 method of protecting software by means of an encryption key, or any other method of verification that takes place on the client system, as described in the David P. Waite et al. document, there can be seen a weakness that is common to all the known systems: the system for unlocking
20 the security is always accessible to client software. In the context of the invention, the security of the system cannot be compromised by examining the application code. Verifications are performed by a remote server and the client does no more than make execution requests which
25 are then performed or not performed as a function of a decision made by the server. At no time, in the

invention, is all of the software present on the client's site.

In the invention, an already existing piece of software is subdivided into two portions by implementing an automatic subdivision process which serves to move out only a few assembler instructions. Compared with the system described by Edward Russell et al., this makes it possible to take advantage of security and verification features specific to an application already in existence and initially designed to operate solely on a client's station.

The Edward Russell et al. document describes a link created by a method of executing a function on a remote server, but that document does not suggest that the link can be created:

- by automatically subdividing the code of a software application; and then
- creating a "functional link" between the two portions of the software.

The method of the invention preferably also comprises the step of exchanging information relating to said digital entity by means of said functional links. Thus, a community of users exchanging information is established.

Also preferably, the method of the invention further comprises a step of controlling access to said server.

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Thus, a user can access said first portion and make use of said digital entity only if that user has access rights.

Advantageously, the method of the invention further
5 comprises the step of controlling and limiting access to said server to a limited period of time and/or to a limited number of utilizations and/or to an approved population of users. Thus, a user can make full use of said digital entity only during an evaluation stage
10 and/or any other stage as agreed with the publisher.

Also advantageously, the method of the invention further comprises:

- a step of identifying the user on making a connection to said server; and
- 15 - a step of storing identifiers specific to said user.

Thus, the publisher of said digital entity can reference clients, in particular potential clients of said digital entity.

20 The method of the invention further comprises the step of analyzing events linked with using said digital entity, in particular the succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said
25 digital entity is used during an evaluation stage. Thus, the publisher has available a panel of users who can co-

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operate in testing the digital entity. The publisher of said digital entity can determine the degree of client satisfaction, in particular of potential clients.

BRIEF DESCRIPTION OF THE DRAWING

5 Other characteristics and advantages of the invention will appear on reading the description of various embodiments of the invention given by way of non-limiting indicative example, and from Figure 1 which is a perspective view of a variant embodiment of a system of
10 the invention.

Introductory paragraph

The method and the system of the invention runs under Windows 95, 98 and Windows NT. It enables
15 publishers 2 and/or software distributors to create a "one-to-one marketing" type link with users 1, 6 via a computer communications network 5a, 5b such as the Internet. The link makes it possible to provide effective monitoring 4e of authorizations to use software
20 and to set up permanent communication between a publisher 2 and each of the users 1 of that publisher's products in order to improve the quality and the pertinence of commercial canvassing and technical support.

Each user 1 of a "linked" product is registered 4g
25 on a server 4 under the control of the publisher 2. The user's access rights to the product are recorded in a

database 4b maintained directly by the publisher. Each user has a personal access account for each product used.

I. Asymmetric application segmentation (AAS)

5 The AAS comprises computer means 3 for subdividing a product into two portions, neither of which can be used without the other.

There follows a description of how AAS enables a publisher to transform an already-designed application so
10 that it benefits from advantages and features provided by the Internet link. The link established by AAS can be thought of as automatically transforming an application resident on an isolated work-station into an application operating in client/server mode.

15 This transformation is performed by specific software. This specific software is referred to below as: the Strategy Editor. It forms part of a set of software tools.

The Strategy Editor performs the transformation in a
20 plurality of stages:

- 1) In an application that has already been designed, and that is available in the form of an executable file in WIN32 format (.EXE, .DLL, ...), the Strategy Editor finds the code section integrated in the executable file.
- 25 For this purpose, it analyzes the header in portable

library. This library serves to display various screens using the computer equipment of the client station 6 and it also serves to initialize a distributed execution sequence between the client code in the client station 6
5 and the server code situated on the server 4. These screens serve to inform the user of the presence of the AAS and to display legal information. They also serve to enable information to be input via input forms or pages.

The system of the invention enables the server code
10 to be executed not as normal Intel code, but as interpreted code. To this end, the server has an interpreter for Intel assembler language. This technique makes it possible to execute any assembler code and to establish a dialog between the client and the server.
15 Thus, the server can at any time retrieve data that it does not hold by interrogating the client.

The AAS enables an application designed to operate on a client station 6 to be transformed into a new application whose code is shared between the client
20 station 6 (second portion of the application) and the memory zone 4a of a remote server 4 (first portion of the application). Installation means 6a enable the second portion of the application to be installed in said station 6. The advantage of this method is to make the
25 software secure and to keep control over access rights. In particular, each prospect can quickly try out the same

application as that used by a client without the publisher running any risk of piracy.

The software cannot be pirated by a user when the user does not hold all of the code. Furthermore, the absolute requirement for having a connection to the remote server 4 in order to run the program makes controlling rights as simple as controlling access to data.

Figure 1 shows the operation of a product published by a publisher 2, and shared between the client station 6 of a user 1 and a server 7. The AAS method makes it possible to apply this method of operation to any product (in particular software, files, compact disks, video disks, etc. ...).

II. On-line marketing channel (OMC)

The software transformed by the AAS method automatically establishes a connection 7, 5b with the remote server 4 when it is executed. Computer means 6b, 4d respectively situated in the station 6 and the server 4 enable such a functional link to be established. This characteristic enables dialog to be established between the publisher 2 and the users 1.

When a user launches the application, the application connects automatically to the Internet 5b to execute the missing portion of code on the publisher's

remote server 4. Thus, in order to run an evaluation version, a prospect must have access to the Internet. Each time the prospect uses a version that is managed by the invention, a link is automatically created between
5 the prospect and the software publisher.

This mode of communication is referred to as OMC. It enables pertinent information to be sent to each user 1 of a product at a moment when it is of greatest interest. It is when the product is in use that
10 technical or commercial information will have greatest impact. For example, the prospect 1 will be more responsive to "commercial simulation" if it arrives specifically at the moment when the software is launched.

Quite often, a user 1 who has not managed to make a
15 piece of software operate appropriately can spend a long time looking for where to obtain support. In this situation also, OMC is a means for putting the user directly into communication with the appropriate service. There will not be any need to refer to a license number
20 or to a trail of calls that have already taken place with technical support since the mere fact of connecting to the server 4 identifies the user automatically. This saves time and avoids wasting telephone expense in reaching the appropriate service.

25 When the support service depends on a paying contract, or so that the publisher can be sure of

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providing the desired level of support to each category of user making legal use of the product, OMC provides an elegant solution for providing pertinent information at reduced cost.

5 The method and the system of the invention integrate OMC in the core of an existing application. The application transformed in this way has additional means serving in particular to send and receive messages coming from various services of the publisher 2 (support,
10 product marketing, sales, ...). It also enables the publisher to send messages which are displayed automatically when the program is started, said messages being addressed to a group of users or to a particular person. These messages can be generated by a particular
15 event (first connection to the server) or they can be the result of a considered decision by publisher personnel. In the long run, OMC is an ideal vehicle for updating software and files with the users of products.

20 **Automatic link generator**

The method and the system of the invention have an automatic generator for adding a link integrating AAS and OMC within an application.

25 The selection of generation parameters (application, parameters for distributing criteria such as duration of application operation, persons authorized to use the

product, ...) is assisted by several runs of screens leading logically to the selection process.

Selection proper consists in decompiling the application code to extract certain sequences of instruction therefrom which are taken away from the application code and stored in the server. Thereafter, these instructions are replaced during an injection stage with new code whose main function is to patch in an extension library within the application as transformed in this way. The extension library provides all of the services for making connection with servers and displays the various screens and messages.

The generator automatically transforms an application (win 32/Intel) into a usable version.

The tracker of the user rights makes it possible to display the users of products and to act on their access rights in real time.

Displaying users 1 and prospects 1 using the products

In particular, the publisher 2 can thus automatically make reference reliably to all of the users 1 of a demonstration version. The publisher obtains reliable information about each prospect (name, company, phone number, e-mail, ...). The publisher can warn each prospect making a registration that access rights will be

immediately withdrawn if the information turns out to be false.

The publisher can find out how often users, and in particular prospects, make use of the demonstration version. For this purpose, the computer station 30 of the publisher 2 and/or the remote server 4 have computer means 3a for analyzing events associated with use of the application. Thus, the publisher knows accurately and in real time for each prospect, the frequency with which the evaluation version is used. The publisher can easily deduce therefrom how motivated a prospect is and can thus direct commercial effort on prospects who are the "hottest". Standard reports enable the publisher in real time to view 3b, 4i information that has been collected in the server's database 4g.

Real time control of the access rights of users and of prospects

The publisher can switch off the execution rights of any prospect, remotely, and immediately. The publisher can even transform a demonstration version of a prospect into a client version in a few seconds over the Internet.

Since access rights are managed by the server 4 of the publisher 2, the publisher can easily modify them to satisfy any requests for evaluation extensions by users 1. The publisher can selectively switch off the rights

of some prospects without thereby altering the rights of all prospects.

Receiving and sending messages

5 The user rights tracker also makes it possible to consult OMC messages and to send information to the users of products.

 The server 4 is installed in addition to an Internet-accessible server. It has identification means
10 4f which enable it to monitor the users 1 of the products. It keeps a user database 4g up to date.

 Each user 1 must have a license to use the application. The administrator of the system can freely allocate licenses to a user within the limits of the
15 rights possessed by that user, as represented by tokens stored in a memory of the server 4.

 In particular, the evaluation version can be used only if the access rights of a prospect are valid. The access rights of a user are defined by the publisher when
20 generating the evaluation version, and they are automatically verified on connection to the remote server. A variety of types of limit can be managed by the invention. For example: a limit as a function of time and a limit as a function of a number of uses.

CLAIMS

- 1/ A method creating a link between at least one user (1) and a publisher (2) of digital entities (in particular software, files, compact disks, video disks, etc. ...)
- 5 that are reproducible by computer and/or electronic means; said digital entities being initially designed for use or execution solely on a single piece of user computer equipment;
- said method comprising the following steps:
- 10 - subdividing said digital entity into two portions, a first portion and a second portion, neither of which portions can be run without the other;
- storing said first portion in a memory zone (4a) of a server (4) connected to a computer network (5a, 5b);
- 15 - transmitting said second portion to at least one user (1) having computer equipment (6) including computer means for implementing said second portion;
- installing (6a) said second portion on said computer equipment (6);
- 20 - connecting said computer equipment to said computer network (5b); and
- establishing (4d, 6b) a functional link between said first portion and said second portion;
- whereby, when said second portion is put into
- 25 operation, it automatically makes a connection via the

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computer network to said server in order to execute the said missing first portion as stored in said server.

2/ A method according to claim 1, such that it further
5 comprises:

- a step of exchanging information relating to said digital entity by means of said functional links;

- whereby a community of users exchanging information is established.

10

3/ A method according claim 1, such that it further
comprises:

- a step of controlling (4e) access to said server;

- whereby a user can access said first portion and use
15 said digital entity only if the user possesses access rights.

4/ A method according to claim 3, such that it further
comprises:

- a step of controlling and limiting access to said server to a limited period of time and/or to a limited
20 number of uses and/or to an approved population of users;

- whereby the user can make use of such digital entity in full only during an evaluation stage and/or any stage
25 agreed to with the publisher.

10

- 5 - a step of storing (4g) identifiers specific to
 said user;

10

15

- whereby the publisher has available a panel of users
20 who can co-operate in testing the digital entity; and

whereby the publisher of said digital entity can determine the degree of client satisfaction, in particular of potential clients.

7/ A method according to claim 6 further comprising the step of determining the degree of staisfaction of the users.

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A B S T R A C T

The present invention relates to methods and systems for creating a link between users and a publisher of digital entities. The method comprises at least one of the following steps:

- subdividing (3) said digital entity into two portions;
- storing one first portion in a memory zone (4a) of a server (4) connected to a computer network (5a, 5b);
- transmitting the other portion to at least one user (1) having computer equipment (6);
- connecting (7) said computer equipment (6) to said computer network (5b); and
- establishing (4d, 6b) a functional link between said first portion and said second portion whereby when said second portion is put into operation, it automatically makes a connection via the computer network to said server in order to execute the said missing first portion as stored in said server.

VERSION WITH MARKINGS TO SHOW CHANGES MADE**FIELD OF THE INVENTION**

The present invention relates to a methods-and
5 ~~systems~~ for creating links between users and a publisher
of digital entities (in particular a publisher of
software, files, compact disks, video disks, etc. ...)
that are reproducible by computer and/or electronic
means; said digital entities being initially designed for
10 use or performance solely on the computer equipment of
one user.

In the meaning of the present invention a "link"
between users and a publisher is a link that makes it
possible over a long period of time, or even permanently,
15 to set up a community of users exchanging information
between one another and/or with the publisher.

The link also serves to protect software against
attempted fraud by those seeking to use it while not
being entitled to user rights assigned by the publisher.
20

BACKGROUND OF THE INVENTION

Methods and systems are known that enable a
publisher to monitor use of software by a user. For this
purpose, some essential portion of the software is
transferred to the user only after the user has
25 registered properly with the software supplier. Before
acquiring software, a user can thus verify whether the
software is of interest. Document US 5 103 476 (David
P. Waite et al.) of April 7, 1992 describes such a method
and such a system. However the non-transferred portion
30 is not used to set up a functional "link" with the other
party. It is used to constrain users to regularize their
situation as licensees, by forcing users to register with
the rights manager. After registration, the missing
portion of the software is transferred to the licensee.
35 The concept of a "link", in the meaning of the present
invention is thus missing from the David P. Waite et al.
document.

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Furthermore, the software protection system described in the David P. Waite et al. document relies on the principle of a cipher key. The code of the missing portion is encrypted. The code needs to be decrypted in order to be executed locally, after it has been transferred to the licensee. The encrypted portion of the code becomes vulnerable while it is being executed. It suffices to save a memory image of the decrypted code to be able to use the code freely on other computer equipment. Furthermore, since user rights are centralized at the server, in order to modify the rights of a particular user, it suffices merely to modify parameters on the server.

Software is also known that enables remote functions to be executed and to cause the software to operate in a client/server mode. Document US 5 553 242 (Edward Russell et al.) of September 3, 1996 describes such a client/server system. Such client/server systems are not designed to create quasi-permanent "links" in the meaning of the present invention. In addition, such systems do not apply to already-existing software applications produced by software publishers. The software constituting the subject matter of the system described by Edward Russell et al. is directly designed in two portions: one portion for the server station; the other for the client station.

OBJECTS AND SUMMARY OF THE INVENTION

An object of the method of the invention is to create a "link" between at least one user and a publisher and/or distributor of digital entities (in particular software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means. Said digital entities are initially designed for use or performance solely on the computer equipment of one user.

The method of the invention comprises the following steps:

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- ~~a step of~~ subdividing said digital entity into two portions, a first portion and a second portion, neither of which portions can be run without the other;

5 - ~~a step of~~ storing said first portion in a memory zone of a server connected to a computer network;

- ~~a step of~~ transmitting said second portion to at least one user having computer equipment including computer means for implementing said second portion;

10 - ~~a step of~~ installing said second portion on said computer equipment;

- ~~a step of~~ connecting said computer equipment to said computer network; and

- ~~a step of~~ establishing a functional link between said first portion and said second portion **whereby**

15 **Thus**, when said second portion is put into operation, it automatically makes a connection via the computer network to said server in order to execute the said missing first portion as stored in said server.

20 If the method of the invention is compared with the method of protecting software by means of an encryption key, or any other method of verification that takes place on the client system, as described in the David P. Waite et al. document, there can be seen a weakness that is common to all the known systems: the system for unlocking the security is always accessible to client software. In
25 the context of the invention, the security of the system cannot be compromised by examining the application code. Verifications are performed by a remote server and the client does no more than make execution requests which
30 are then performed or not performed as a function of a decision made by the server. At no time, in the invention, is all of the software present on the client's site.

35 In the invention, an already existing piece of software is subdivided into two portions by implementing an automatic subdivision process which serves to move out only a few assembler instructions. Compared with the

system described by Edward Russell et al., this makes it possible to take advantage of security and verification features specific to an application already in existence and initially designed to operate solely on a client's station.

The Edward Russell et al. document describes a link created by a method of executing a function on a remote server, but that document does not suggest that the link can be created:

- 10 - by automatically subdividing the code of a software application; and then
- creating a "functional link" between the two portions of the software.

The method of the invention preferably also
15 comprises the step of exchanging information relating to said digital entity by means of said functional links. Thus, a community of users exchanging information is established.

Also preferably, the method of the invention further
20 comprises a step of controlling access to said server. Thus, a user can access said first portion and make use of said digital entity only if that user has access rights.

Advantageously, the method of the invention further
25 comprises the step of controlling and limiting access to said server to a limited period of time and/or to a limited number of utilizations and/or to an approved population of users. Thus, a user can make full use of said digital entity only during an evaluation stage
30 and/or any other stage as agreed with the publisher.

Also advantageously, the method of the invention further comprises:

- a step of identifying the user on making a connection to said server; and
- 35 - a step of storing identifiers specific to said user.

Thus, the publisher of said digital entity can reference clients, in particular potential clients of said digital entity.

5 The method of the invention further comprises the step of analyzing events linked with using said digital entity, in particular the succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage. Thus, 10 the publisher has available a panel of users who can co-operate in testing the digital entity. The publisher of said digital entity can determine the degree of client satisfaction, in particular of potential clients.

~~The method of the invention further comprises a step of downloading the first portion of said digital entity into the computer equipment of the user. A user who has decided to acquire said digital entity can immediately have it available locally.~~

~~The present invention also provides a system creating a link between at least one user and a publisher of digital entities (in particular software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means. Said digital entities are initially designed for use or execution solely on a single piece of user computer equipment.~~

~~The system of the invention comprises:~~
~~partitioning computer means for subdividing said digital entity into two portions, a first portion and a second portion, neither of which can be used without the other;~~

~~a server connected to a computer network, said server having a memory zone in which said first portion is stored;~~
 35 ~~transmission means for transmitting said second portion to at least one user having computer equipment~~

~~installation means for installing said second portion on said computer equipment;~~

~~Thus, when said second portion is put into operation, it automatically makes a connection via the computer network with said server to execute said missing first portion stored in said server.~~

~~Preferably, the system of the invention further comprises control means for controlling access to said server. Thus, a user can access said first portion and use said digital entity only if the user possesses access rights.~~

~~Also advantageously, the system of the invention further comprises:~~

35 ~~storage means for storing identifiers specific to~~
~~said user.~~

~~—The publisher of said digital entity can thus reference clients, in particular potential clients of said digital entity.~~

~~—In which case, preferably, the system of the invention is such that said server includes said identification means and said storage means.~~

~~—The system of the invention also comprises computer analysis means for analyzing events linked with using said digital entity, in particular the succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage. Thus, the publisher has available a panel of users who can co-operate in testing the digital entity. The publisher of said digital entity can determine the degree of client satisfaction, in particular with potential clients.~~

~~—The system of the invention also comprises downloading means in particular situated in said server, for downloading the first portion of said digital entity into the computer equipment of a user. Thus, a user who has decided to acquire digital entity can immediately have it available locally.~~

~~—The present invention also provides a server creating a link between at least one user and a publisher of digital entities (in particular software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means, said digital entities being initially designed for use or execution solely on a single piece of user computer equipment.~~

~~—The said server is connected to a computer network. The said server comprises:~~

~~—computer means for using a first portion of the digital entity in co-operation with a second portion used on the user's computer equipment;~~

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~~— a memory zone in which said first portion is stored; and~~

~~— computer means for establishing a functional link between said first portion and said second portion.~~

5 ~~— With this combination of means, on said second portion being put into operation, it automatically makes a connection via the computer network with said server to execute said missing first portion stored in said server.~~

10 ~~— Preferably, the computer means for establishing a functional link between said first portion and said second portion comprise communications means for exchanging information relating to said digital entity. Thus, a community of users exchanging information is established.~~

15 ~~— Also preferably, the server of the invention comprises control means for controlling access to said server. Thus, a user can access said first portion and use said digital entity only if the user possesses access rights.~~

20 ~~— Advantageously, the control means further comprise limitation means for limiting access to said server to a limited period of time and/or to a limited number of uses and/or to an approved population of users. Thus, a user can use said digital entity in full only during an evaluation stage and/or during any stage agreed with the publisher.~~

~~— The server preferably also comprises:~~

~~— identification means for identifying the user on connecting to said server; and~~

30 ~~— storage means for storing identifiers specific to said user.~~

~~— Thus, the publisher of said digital entity can reference clients, in particular potential clients of said digital entity.~~

35 ~~— Also preferably, the server further comprises computer analysis means for analyzing events associated with using said digital entity, in particular the~~

~~succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage. Thus, the publisher has available a panel of users who can co-operate in testing the digital entity. Thus also, the publisher of said digital entity can determine the degree of client satisfaction, in particular of potential clients.~~
~~Advantageously, the server further comprises downloading means for downloading the first portion of said digital entity into the computer equipment of the user. Thus, a user who has decided to acquire said digital entity can have it available locally, immediately.~~

15 BRIEF DESCRIPTION OF THE DRAWING

Other characteristics and advantages of the invention will appear on reading the description of various embodiments of the invention given by way of non-limiting indicative example, and from Figure 1 which is a perspective view of a variant embodiment of a system of the invention.

Introductory paragraph

The method and the system of the invention runs under Windows 95, 98 and Windows NT. It enables publishers 2 and/or software distributors to create a "one-to-one marketing" type link with users 1, 6 via a computer communications network 5a, 5b such as the Internet. The link makes it possible to provide effective monitoring 4e of authorizations to use software and to set up permanent communication between a publisher 2 and each of the users 1 of that publisher's products in order to improve the quality and the pertinence of commercial canvassing and technical support.

Each user 1 of a "linked" product is registered 4g on a server 4 under the control of the publisher 2. The user's access rights to the product are recorded in a

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executable file, the Strategy Editor then replaces this

5) Thereafter, the Strategy Editor proceeds to save the new executable file.

This makes it possible to add features to the application, in particular the features described below in Chapter II - On-line marketing channel (OMC).

The system of the invention enables the server code
25 to be executed not as normal Intel code, but as
interpreted code. To this end, the server has an
interpreter for Intel assembler language. This technique
makes it possible to execute any assembler code and to
establish a dialog between the client and the server.
30 Thus, the server can at any time retrieve data that it
does not hold by interrogating the client.

The AAS enables an application designed to operate on a client station 6 to be transformed into a new application whose code is shared between the client station 6 (second portion of the application) and the memory zone 4a of a remote server 4 (first portion of the application). Installation means 6a enable the second

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1 of a product at a moment when it is of greatest
interest. It is when the product is in use that
technical or commercial information will have greatest
impact. For example, the prospect 1 will be more
5 responsive to "commercial simulation" if it arrives
specifically at the moment when the software is launched.

Quite often, a user 1 who has not managed to make a
piece of software operate appropriately can spend a long
time looking for where to obtain support. In this
10 situation also, OMC is a means for putting the user
directly into communication with the appropriate service.
There will not be any need to refer to a license number
or to a trail of calls that have already taken place with
technical support since the mere fact of connecting to
15 the server 4 identifies the user automatically. This
saves time and avoids wasting telephone expense in
reaching the appropriate service.

When the support service depends on a paying
contract, or so that the publisher can be sure of
20 providing the desired level of support to each category
of user making legal use of the product, OMC provides an
elegant solution for providing pertinent information at
reduced cost.

The method and the system of the invention integrate
25 OMC in the core of an existing application. The
application transformed in this way has additional means
serving in particular to send and receive messages coming
from various services of the publisher 2 (support,
product marketing, sales, ...). It also enables the
30 publisher to send messages which are displayed
automatically when the program is started, said messages
being addressed to a group of users or to a particular
person. These messages can be generated by a particular
event (first connection to the server) or they can be the
35 result of a considered decision by publisher personnel.
In the long run, OMC is an ideal vehicle for updating
software and files with the users of products.

2025 RELEASE UNDER E.O. 14176

Automatic link generator

The method and the system of the invention have an automatic generator for adding a link integrating AAS and OMC within an application.

The selection of generation parameters (application, parameters for distributing criteria such as duration of application operation, persons authorized to use the product, ...) is assisted by several runs of screens leading logically to the selection process.

Selection proper consists in decompiling the application code to extract certain sequences of instruction therefrom which are taken away from the application code and stored in the server. Thereafter, these instructions are replaced during an injection stage with new code whose main function is to patch in an extension library within the application as transformed in this way. The extension library provides all of the services for making connection with servers and displays the various screens and messages.

The generator automatically transforms an application (win 32/Intel) into a usable version.

The tracker of the user rights makes it possible 3b, 4i to display the users of products and to act on their access rights in real time.

Displaying users 1 and prospects 1 using the products

In particular, the publisher 2 can thus automatically make reference reliably to all of the users 1 of a demonstration version. The publisher obtains reliable information about each prospect (name, company, phone number, e-mail, ...). The publisher can warn each prospect making a registration that access rights will be immediately withdrawn if the information turns out to be false.

The publisher can find out how often users, and in particular prospects, make use of the demonstration

version. For this purpose, the computer station 30 of the publisher 2 and/or the remote server 4 have computer means 3a for analyzing events associated with use of the application. Thus, the publisher knows accurately and in real time for each prospect, the frequency with which the evaluation version is used. The publisher can easily deduce therefrom how motivated a prospect is and can thus direct commercial effort on prospects who are the "hottest". Standard reports enable the publisher in real time to view 3b, 4i information that has been collected in the server's database 4g.

Real time control of the access rights of users and of prospects

The publisher can switch off the execution rights of any prospect, remotely, and immediately. The publisher can even transform a demonstration version of a prospect into a client version in a few seconds over the Internet.

Since access rights are managed by the server 4 of the publisher 2, the publisher can easily modify them to satisfy any requests for evaluation extensions by users 1. The publisher can selectively switch off the rights of some prospects without thereby altering the rights of all prospects.

~~Downloading the application~~

~~If a prospect decides to purchase the application, the purchase becomes effective within the next few minutes without any need to modify the prospect's local configuration. The publisher can transform a demonstration version into a client version without effort. Only a few minutes are required to enable the server 4 to use the download means 4h to download the missing portion of the code to the machine of a prospect who has become a client. This transformation is technically transparent for the client; the application~~

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~~can now find locally that which it previously had to
execute on the publisher's remote server.~~

Receiving and sending messages

5 The user rights tracker also makes it possible to
consult OMC messages and to send information to the users
of products.

10 The server 4 is installed in addition to an
Internet-accessible server. It has identification means
4f which enable it to monitor the users 1 of the
products. It keeps a user database 4g up to date.

15 Each user 1 must have a license to use the
application. The administrator of the system can freely
allocate licenses to a user within the limits of the
rights possessed by that user, as represented by tokens
stored in a memory of the server 4.

20 In particular, the evaluation version can be used
only if the access rights of a prospect are valid. The
access rights of a user are defined by the publisher when
generating the evaluation version, and they are
automatically verified on connection to the remote
server. A variety of types of limit can be managed by
the invention. For example: a limit as a function of
time and a limit as a function of a number of uses.

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CLAIMS

- 1/ A method creating a link between at least one user (1) and a publisher (2) of digital entities (in particular software, files, compact disks, video disks, etc. ...)
- 5 that are reproducible by computer and/or electronic means; said digital entities being initially designed for use or execution solely on a single piece of user computer equipment;
- said method comprising the following steps:
- 10 - ~~a step (3) of~~ subdividing said digital entity into two portions, a first portion and a second portion, neither of which portions can be run without the other;
- ~~a step of~~ storing said first portion in a memory zone (4a) of a server (4) connected to a computer network (5a, 5b);
- 15 - ~~a step of~~ transmitting said second portion to at least one user (1) having computer equipment (6) including computer means for implementing said second portion;
- 20 - ~~a step of~~ installing (6a) said second portion on said computer equipment (6);
- ~~a step (7) of~~ connecting said computer equipment to said computer network (5b); and
- ~~a step of~~ establishing (4d, 6b) a functional link
- 25 between said first portion and said second portion;
- whereby, when said second portion is put into operation, it automatically makes a connection via the computer network to said server in order to execute the said missing first portion as stored in said server.
- 30
- 2/ A method according to claim 1, such that it further comprises:
- a step of exchanging information relating to said digital entity by means of said functional links;
- 35 whereby a community of users exchanging information is established.

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3/ A method according to claim 1 ~~as claimed~~, such that it further comprises:

- a step of controlling (4e) access to said server; whereby a user can access said first portion and use
- 5 said digital entity only if the user possesses access rights.

4/ A method according to claim 3, such that it further comprises:

- a step of controlling and limiting access to said
- 10 server to a limited period of time and/or to a limited number of uses and/or to an approved population of users; whereby the user can make use of such digital entity in full only during an evaluation stage and/or any stage
- 15 agreed to with the publisher.

5/ A method according to ~~any one of~~ claims 1 ~~to 4~~, such that it further comprises:

- a step of identifying (4f) the user on making a
- 20 connection to said server; and
- a step of storing (4g) identifiers specific to said user;
- whereby the publisher of said digital entity can reference clients, in particular potential clients of
- 25 said digital entity.

6/ A method according to ~~any one of~~ claims 1 ~~to 5~~, such that it further comprises:

- a step of analyzing (3a) events linked with using
- 30 said digital entity, in particular the succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage;
- 35 whereby the publisher has available a panel of users who can co-operate in testing the digital entity; and

whereby the publisher of said digital entity can determine the degree of client satisfaction, in particular of potential clients.

- 5 7/ A method according to claim 6 further comprising the step of determining the degree of satisfaction of the users.

10 ~~7/ A method according to any one of claims 1 to 6, such that it further comprises:~~
~~----- a step of downloading (4h) the first portion of said digital entity into the computer equipment of the user;~~
~~----- whereby a user who has decided to acquire said~~
 15 ~~digital entity can immediately have it available locally.~~

~~8/ A system creating a link between at least one user (1) and a publisher (2) of digital entities (in particular software, files, compact disks, video disks, etc....) that are reproducible by computer and/or electronic means, said digital entities being initially designed for use or execution solely on a single piece of user computer equipment;~~
 20 ~~----- said system comprising the following steps:~~
 25 ~~----- partitioning computer means (3) for subdividing said digital entity into two portions, a first portion and a second portion, neither of which can be used without the other;~~
~~----- a server (4) connected to a computer network (5a, 5b), said server (4) having a memory zone (4a) in which said first portion is stored;~~
 30 ~~----- transmission means (5a, 5b) for transmitting said second portion to at least one user (1) having computer equipment (6) including computer means for implementing said second portion;~~
 35 ~~----- installation means (6a) for installing said second portion on said computer equipment (6);~~

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~~connection means (7) for connecting said computer equipment to said computer network (5b); and~~

~~computer means (4d, 6b) for establishing a functional link between said first portion and said~~
 5 ~~portion;~~

~~whereby, when said second portion is put into operation, it automatically makes a connection via the computer network with said server to execute said missing first portion stored in said server.~~

9/ ~~A system according to claim 8, such that:~~

~~the computer means (4d, 6b) for establishing a functional link between said first portion and said second portion comprise communications means for~~
 15 ~~exchanging information concerning said digital entity;~~

~~whereby a community of users interchanging information is established.~~

10/ ~~A system according to claim 7 or claim 8, such that it further comprises:~~

~~control means (4e) for controlling access to said server;~~

~~whereby a user can access said first portion and use said digital entity only if the user possesses access~~
 25 ~~rights.~~

11/ ~~A system according to claim 10, such that the control means (4e) further comprise limitation means for limiting access to said server to a limited period of time and/or~~
 30 ~~to a limited number of uses and/or to an approved population of users;~~

~~whereby the user can use said digital entity in full only during an evaluation stage and/or any other stage agreed with the publisher.~~

12/ ~~A system according to any one of claims 8 to 11, such that it further comprises:~~

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~~identification means (4f) for identifying the user when connected to said server; and~~

~~storage means (4g) for storing identifiers specific to said user;~~

5 ~~whereby the publisher of said digital entity can reference clients, in particular potential clients of said digital entity.~~

13/ ~~A system according to claim 12, such that said server includes said identification means (4f) and said storage means (4g).~~

14/ ~~A system according to any one of claims 8 to 13, such that it further comprises:~~

15 ~~computer analysis means (3a) for analyzing events linked with using said digital entity, in particular the succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage;~~

20 ~~whereby the publisher has available a panel of users who can co-operate in testing the digital entity; and~~

~~whereby the publisher of said digital entity can determine the degree of client satisfaction, in~~

25 ~~particular with potential clients.~~

15/ ~~A system according to any one of claims 8 to 14, such that it further comprises:~~

30 ~~downloading means (4h) in particular situated in said server, for downloading the first portion of said digital entity into the computer equipment of a user;~~

~~whereby a user who has decided to acquire digital entity can immediately have it available locally.~~

35 16/ ~~A server creating a link between at least one user (1) and a publisher (2) of digital entities (in particular software, files, compact disks, video disks,~~

5 ~~said server (4) being connected to a computer~~
~~network (5a, 4b);~~

~~computer means for using a first portion of the digital entity in co-operation with a second portion used on the user's computer equipment (6).~~

10 ~~on the user's computer equipment (6);~~

~~computer means (4d) for establishing a functional link between said first portion and said second portion;~~

15 ~~whereby, on said second portion being put into~~

~~operation, it automatically makes a connection via the computer network with said server to execute said missing first portion stored in said server.~~

20 ~~17/ A server according to claim 16, such that:~~

~~the computer means (4d) for establishing a functional link between said first portion and said second portion comprise communications means for exchanging information relating to said digital ent~~

25 ~~whereby a community of users exchanging information~~
~~is established.~~

~~18/ A server according to claim 16 or claim 17, such that
it further comprises:~~

30 ~~control means (4c) for controlling access to said~~
~~server;~~

~~whereby a user can access said first portion and use
said digital entity only if the user possesses access
rights.~~

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~~19/ A server according to claim 18, such that the control means (4e) further comprise limitation means for limiting~~

~~access to said server to a limited period of time and/or
to a limited number of uses and/or to an approved
population of users;~~

5 ~~whereby a user can use said digital entity in full
only during an evaluation stage and/or during any stage
agreed with the publisher.~~

20/ ~~A server according to any one of claims 16 to 19,
such that it further comprises:~~

10 ~~identification means (4f) for identifying the user
on connecting to said server; and~~

~~storage means (4g) for storing identifiers
specific to said user;~~

15 ~~whereby the publisher of said digital entity can
reference clients, in particular potential clients of
said digital entity.~~

21/ ~~A server according to any one of claims 16 to 20,
such that it further comprises:~~

20 ~~computer analysis means (3a) for analyzing events
associated with using said digital entity, in particular
the succession of events during installation, the
frequency with which a function of said digital entity is
used, the frequency with which said digital entity is~~
25 ~~used during an evaluation stage;~~

~~whereby the publisher has available a panel of users
who can co-operate in testing the digital entity; and~~

30 ~~whereby the publisher of said digital entity can
determine the degree of client satisfaction, in
particular of potential clients.~~

22/ ~~A server according to any one of claims 16 to 21,
such that it further comprises:~~

35 ~~downloading means (4h) for downloading the first
portion of said digital entity into the computer
equipment of the user;~~

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~~whereby a user who has decided to acquire said
digital entity can immediately have it available locally.~~

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A B S T R A C T

~~METHOD OF CREATING A LINK BETWEEN A PUBLISHER AND USER~~

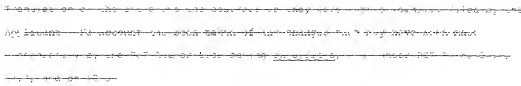
5 The present invention relates to methods and systems for creating a link between users and a publisher of digital entities. The method comprises at least one of the following steps:

- 10 - ~~a step of~~ subdividing (3) said digital entity into two portions;
- ~~a step of~~ storing one first portion in a memory zone (4a) of a server (4) connected to a computer network (5a, 5b);
- ~~a step of~~ transmitting the other portion to at least one user (1) having computer equipment (6);
- 15 - ~~a step of~~ connecting (7) said computer equipment (6) to said computer network (5b); and
- ~~a step of~~ establishing (4d, 6b) a functional link between said first portion and said second portion
- 20 **whereby when said second portion is put into operation, it automatically makes a connection via the computer network to said server in order to execute the said missing first portion as stored in said server.**

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A METHOD OF CREATING A LINK BETWEEN A PUBLISHER AND USERS

The present invention relates to methods and systems for creating links between users and a publisher of digital entities (in particular a publisher of software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means; said digital entities being initially designed for use or performance solely on the computer equipment of one user.

In the meaning of the present invention a "link" between users and a publisher is a link that makes it possible over a long period of time, or even permanently, to set up a community of users exchanging information between one another and/or with the publisher.

The link also serves to protect software against attempted fraud by those seeking to use it while not being entitled to user rights assigned by the publisher.

Methods and systems are known that enable a publisher to monitor use of software by a user. For this purpose, some essential portion of the software is transferred to the user only after the user has registered properly with the software supplier. Before acquiring software, a user can thus verify whether the software is of interest. Document US 5 103 476 (David P. Waite et al.) of April 7, 1992 describes such a method and such a system. However the non-transferred portion is not used to set up a functional "link" with the other party. It is used to constrain users to regularize their situation as licensees, by forcing users to register with the rights manager. After registration, the missing portion of the software is transferred to the licensee. The concept of a "link", in the meaning of the present invention is thus missing from the David P. Waite et al. document.

Furthermore, the software protection system described in the David P. Waite et al. document relies on the principle of a cipher key. The code of the missing portion is encrypted. The code needs to be decrypted in

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order to be executed locally, after it has been transferred to the licensee. The encrypted portion of the code becomes vulnerable while it is being executed. It suffices to save a memory image of the decrypted code to be able to use the code freely on other computer equipment. Furthermore, since user rights are centralized at the server, in order to modify the rights of a particular user, it suffices merely to modify parameters on the server.

Software is also known that enables remote functions to be executed and to cause the software to operate in a client/server mode. Document US 5 553 242 (Edward Russell et al.) of September 3, 1996 describes such a client/server system. Such client/server systems are not designed to create quasi-permanent "links" in the meaning of the present invention. In addition, such systems do not apply to already-existing software applications produced by software publishers. The software constituting the subject matter of the system described by Edward Russell et al. is directly designed in two portions: one portion for the server station; the other for the client station.

An object of the method of the invention is to create a "link" between at least one user and a publisher and/or distributor of digital entities (in particular software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means. Said digital entities are initially designed for use or performance solely on the computer equipment of one user.

The method of the invention comprises the following steps:

- a step of subdividing said digital entity into two portions, a first portion and a second portion, neither of which portions can be run without the other;
- a step of storing said first portion in a memory zone of a server connected to a computer network;

- a step of transmitting said second portion to at least one user having computer equipment including computer means for implementing said second portion;

5 - a step of installing said second portion on said computer equipment;

 - a step of connecting said computer equipment to said computer network; and

 - a step of establishing a functional link between said first portion and said second portion.

10 Thus, when said second portion is put into operation, it automatically makes a connection via the computer network to said server in order to execute the said missing first portion as stored in said server.

 If the method of the invention is compared with the
15 method of protecting software by means of an encryption key, or any other method of verification that takes place on the client system, as described in the David P. Waite et al. document, there can be seen a weakness that is common to all the known systems: the system for unlocking
20 the security is always accessible to client software. In the context of the invention, the security of the system cannot be compromised by examining the application code. Verifications are performed by a remote server and the client does no more than make execution requests which
25 are then performed or not performed as a function of a decision made by the server. At no time, in the invention, is all of the software present on the client's site.

 In the invention, an already existing piece of
30 software is subdivided into two portions by implementing an automatic subdivision process which serves to move out only a few assembler instructions. Compared with the system described by Edward Russell et al., this makes it possible to take advantage of security and verification
35 features specific to an application already in existence and initially designed to operate solely on a client's station.

The Edward Russell et al. document describes a link created by a method of executing a function on a remote server, but that document does not suggest that the link can be created:

- 5 - by automatically subdividing the code of a software application; and then
- creating a "functional link" between the two portions of the software.

10 The method of the invention preferably also comprises the step of exchanging information relating to said digital entity by means of said functional links. Thus, a community of users exchanging information is established.

15 Also preferably, the method of the invention further comprises a step of controlling access to said server. Thus, a user can access said first portion and make use of said digital entity only if that user has access rights.

20 Advantageously, the method of the invention further comprises the step of controlling and limiting access to said server to a limited period of time and/or to a limited number of utilizations and/or to an approved population of users. Thus, a user can make full use of said digital entity only during an evaluation stage

25 and/or any other stage as agreed with the publisher.

Also advantageously, the method of the invention further comprises:

- a step of identifying the user on making a connection to said server; and
- 30 - a step of storing identifiers specific to said user.

Thus, the publisher of said digital entity can reference clients, in particular potential clients of said digital entity.

35 The method of the invention further comprises the step of analyzing events linked with using said digital entity, in particular the succession of events during

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installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage. Thus, the publisher has available a panel of users who can co-operate in testing the digital entity. The publisher of said digital entity can determine the degree of client satisfaction, in particular of potential clients.

The method of the invention further comprises a step of downloading the first portion of said digital entity into the computer equipment of the user. A user who has decided to acquire said digital entity can immediately have it available locally.

The present invention also provides a system creating a link between at least one user and a publisher of digital entities (in particular software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means. Said digital entities are initially designed for use or execution solely on a single piece of user computer equipment.

The system of the invention comprises:

- partitioning computer means for subdividing said digital entity into two portions, a first portion and a second portion, neither of which can be used without the other;
- a server connected to a computer network, said server having a memory zone in which said first portion is stored;
- transmission means for transmitting said second portion to at least one user having computer equipment including computer means for implementing said second portion;
- installation means for installing said second portion on said computer equipment;
- connection means for connecting said computer equipment to said computer network; and

- computer means for establishing a functional link between said first portion and said portion.

Thus, when said second portion is put into operation, it automatically makes a connection via the
5 computer network with said server to execute said missing first portion stored in said server.

Preferably, the system of the invention is such that the computer means for establishing a functional link between said first portion and said second portion
10 comprise communications means for exchanging information concerning said digital entity. A community of users interchanging information is thus created.

Preferably, the system of the invention further comprises control means for controlling access to said
15 server. Thus, a user can access said first portion and use said digital entity only if the user possesses access rights.

Advantageously, the system of the invention is such that the control means further comprise limitation means
20 for limiting access to said server to a limited period of time and/or to a limited number of uses and/or to an approved population of users. Thus, the user can use said digital entity in full only during an evaluation stage and/or any other stage agreed with the publisher.

Also advantageously, the system of the invention further comprises:

- identification means for identifying the user when connected to said server; and
- storage means for storing identifiers specific to
30 said user.

The publisher of said digital entity can thus reference clients, in particular potential clients of said digital entity.

In which case, preferably, the system of the
35 invention is such that said server includes said identification means and said storage means.

The system of the invention also comprises computer analysis means for analyzing events linked with using said digital entity, in particular the succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage. Thus, the publisher has available a panel of users who can co-operate in testing the digital entity. The publisher of said digital entity can determine the degree of client satisfaction, in particular with potential clients.

The system of the invention also comprises downloading means in particular situated in said server, for downloading the first portion of said digital entity into the computer equipment of a user. Thus, a user who has decided to acquire digital entity can immediately have it available locally.

The present invention also provides a server creating a link between at least one user and a publisher of digital entities (in particular software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means; said digital entities being initially designed for use or execution solely on a single piece of user computer equipment.

The said server is connected to a computer network. The said server comprises:

- computer means for using a first portion of the digital entity in co-operation with a second portion used on the user's computer equipment;
- a memory zone in which said first portion is stored; and
- computer means for establishing a functional link between said first portion and said second portion.

With this combination of means, on said second portion being put into operation, it automatically makes

a connection via the computer network with said server to execute said missing first portion stored in said server.

Preferably, the computer means for establishing a functional link between said first portion and said second portion comprise communications means for exchanging information relating to said digital entity. Thus, a community of users exchanging information is established.

Also preferably, the server of the invention comprises control means for controlling access to said server. Thus, a user can access said first portion and use said digital entity only if the user possesses access rights.

Advantageously, the control means further comprise limitation means for limiting access to said server to a limited period of time and/or to a limited number of uses and/or to an approved population of users. Thus, a user can use said digital entity in full only during an evaluation stage and/or during any stage agreed with the publisher.

The server preferably also comprises:

- identification means for identifying the user on connecting to said server; and
- storage means for storing identifiers specific to said user.

Thus, the publisher of said digital entity can reference clients, in particular potential clients of said digital entity.

Also preferably, the server further comprises computer analysis means for analyzing events associated with using said digital entity, in particular the succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage. Thus, the publisher has available a panel of users who can co-operate in testing the digital entity. Thus also, the publisher of said digital entity

can determine the degree of client satisfaction, in particular of potential clients.

Advantageously, the server further comprises downloading means for downloading the first portion of said digital entity into the computer equipment of the user. Thus, a user who has decided to acquire said digital entity can have it available locally, immediately.

Other characteristics and advantages of the invention will appear on reading the description of various embodiments of the invention given by way of non-limiting indicative example, and from Figure 1 which is a perspective view of a variant embodiment of a system of the invention.

Introductory paragraph

The method and the system of the invention runs under Windows 95, 98 and Windows NT. It enables publishers 2 and/or software distributors to create a "one-to-one marketing" type link with users 1, 6 via a computer communications network 5a, 5b such as the Internet. The link makes it possible to provide effective monitoring 4e of authorizations to use software and to set up permanent communication between a publisher 2 and each of the users 1 of that publisher's products in order to improve the quality and the pertinence of commercial canvassing and technical support.

Each user 1 of a "linked" product is registered 4g on a server 4 under the control of the publisher 2. The user's access rights to the product are recorded in a database 4b maintained directly by the publisher. Each user has a personal access account for each product used.

I. Asymmetric application segmentation (AAS)

The AAS comprises computer means 3 for subdividing a product into two portions, neither of which can be used without the other.

There follows a description of how AAS enables a publisher to transform an already-designed application so that it benefits from advantages and features provided by the Internet link. The link established by AAS can be
 5 thought of as automatically transforming an application resident on an isolated work-station into an application operating in client/server mode.

This transformation is performed by specific software. This specific software is referred to below
 10 as: the Strategy Editor. It forms part of a set of software tools.

The Strategy Editor performs the transformation in a plurality of stages:

1) In an application that has already been designed,
 15 and that is available in the form of an executable file in WIN32 format (.EXE, .DLL, ...), the Strategy Editor finds the code section integrated in the executable file. For this purpose, it analyzes the header in portable executable format (PEF). It thus finds the zone in
 20 assembler code.

2) The Strategy Editor then proceeds to disassemble code into Intel assembler instructions.

3) Thereafter a zone of code for moving out to the server is selected. This selection can be performed
 25 automatically or manually by the user of the Strategy Editor.

4) The code that has been selected in this way is stored on the server by the Strategy Editor. In a new executable file, the Strategy Editor then replaces this
 30 zone of code with a piece of new code. This new code is referred to below as Hook Code.

5) Thereafter, the Strategy Editor proceeds to save the new executable file.

The Hook Code is a series of assembly instructions
 35 enabling a dynamic library named el32.dll to be loaded into the execution space of the application.

This makes it possible to add features to the application, in particular the features described below in Chapter II - On-line marketing channel (OMC).

The code for starting this library is executed automatically when loading the application. Consequently, each time the new application is run, it executes the Hook Code instead of the original code, thereby launching functions for initializing the el32.dll library. This library serves to display various screens using the computer equipment of the client station 6 and it also serves to initialize a distributed execution sequence between the client code in the client station 6 and the server code situated on the server 4. These screens serve to inform the user of the presence of the AAS and to display legal information. They also serve to enable information to be input via input forms or pages.

The system of the invention enables the server code to be executed not as normal Intel code, but as interpreted code. To this end, the server has an interpreter for Intel assembler language. This technique makes it possible to execute any assembler code and to establish a dialog between the client and the server. Thus, the server can at any time retrieve data that it does not hold by interrogating the client.

The AAS enables an application designed to operate on a client station 6 to be transformed into a new application whose code is shared between the client station 6 (second portion of the application) and the memory zone 4a of a remote server 4 (first portion of the application). Installation means 6a enable the second portion of the application to be installed in said station 6. The advantage of this method is to make the software secure and to keep control over access rights. In particular, each prospect can quickly try out the same application as that used by a client without the publisher running any risk of piracy.

The software cannot be pirated by a user when the user does not hold all of the code. Furthermore, the absolute requirement for having a connection to the remote server 4 in order to run the program makes
 5 controlling rights as simple as controlling access to data.

Figure 1 shows the operation of a product published by a publisher 2, and shared between the client station 6 of a user 1 and a server 7. The AAS method makes it
 10 possible to apply this method of operation to any product (in particular software, files, compact disks, video disks, etc. ...).

II. On-line marketing channel (OMC)

15 The software transformed by the AAS method automatically establishes a connection 7, 5b with the remote server 4 when it is executed. Computer means 6b, 4d respectively situated in the station 6 and the server 4 enable such a functional link to be established. This
 20 characteristic enables dialog to be established between the publisher 2 and the users 1.

When a user launches the application, the application connects automatically to the Internet 5b to execute the missing portion of code on the publisher's
 25 remote server 4. Thus, in order to run an evaluation version, a prospect must have access to the Internet. Each time the prospect uses a version that is managed by the invention, a link is automatically created between the prospect and the software publisher.

30 This mode of communication is referred to as OMC. It enables pertinent information to be sent to each user 1 of a product at a moment when it is of greatest interest. It is when the product is in use that technical or commercial information will have greatest
 35 impact. For example, the prospect 1 will be more responsive to "commercial simulation" if it arrives specifically at the moment when the software is launched.

Quite often, a user 1 who has not managed to make a piece of software operate appropriately can spend a long time looking for where to obtain support. In this situation also, OMC is a means for putting the user
 5 directly into communication with the appropriate service. There will not be any need to refer to a license number or to a trail of calls that have already taken place with technical support since the mere fact of connecting to the server 4 identifies the user automatically. This
 10 saves time and avoids wasting telephone expense in reaching the appropriate service.

When the support service depends on a paying contract, or so that the publisher can be sure of providing the desired level of support to each category
 15 of user making legal use of the product, OMC provides an elegant solution for providing pertinent information at reduced cost.

The method and the system of the invention integrate OMC in the core of an existing application. The
 20 application transformed in this way has additional means serving in particular to send and receive messages coming from various services of the publisher 2 (support, product marketing, sales, ...). It also enables the publisher to send messages which are displayed
 25 automatically when the program is started, said messages being addressed to a group of users or to a particular person. These messages can be generated by a particular event (first connection to the server) or they can be the result of a considered decision by publisher personnel.
 30 In the long run, OMC is an ideal vehicle for updating software and files with the users of products.

Automatic link generator

The method and the system of the invention have an
 35 automatic generator for adding a link integrating AAS and OMC within an application.

The selection of generation parameters (application, parameters for distributing criteria such as duration of application operation, persons authorized to use the product, ...) is assisted by several runs of screens
 5 leading logically to the selection process.

Selection proper consists in decompiling the application code to extract certain sequences of instruction therefrom which are taken away from the application code and stored in the server. Thereafter, these instructions are replaced during an injection stage
 10 with new code whose main function is to patch in an extension library within the application as transformed in this way. The extension library provides all of the services for making connection with servers and displays the various screens and messages.
 15

The generator automatically transforms an application (win 32/Intel) into a usable version.

The tracker of the user rights makes it possible 3b, 4i to display the users of products and to act on their
 20 access rights in real time.

Displaying users 1 and prospects 1 using the products

In particular, the publisher 2 can thus automatically make reference reliably to all of the users
 25 1 of a demonstration version. The publisher obtains reliable information about each prospect (name, company, phone number, e-mail, ...). The publisher can warn each prospect making a registration that access rights will be immediately withdrawn if the information turns out to be
 30 false.

The publisher can find out how often users, and in particular prospects, make use of the demonstration version. For this purpose, the computer station 30 of the publisher 2 and/or the remote server 4 have computer
 35 means 3a for analyzing events associated with use of the application. Thus, the publisher knows accurately and in real time for each prospect, the frequency with which the

evaluation version is used. The publisher can easily deduce therefrom how motivated a prospect is and can thus direct commercial effort on prospects who are the "hottest". Standard reports enable the publisher in real time to view 3b, 4i information that has been collected in the server's database 4g.

Real time control of the access rights of users and of prospects

10 The publisher can switch off the execution rights of any prospect, remotely, and immediately. The publisher can even transform a demonstration version of a prospect into a client version in a few seconds over the Internet.

Since access rights are managed by the server 4 of the publisher 2, the publisher can easily modify them to satisfy any requests for evaluation extensions by users 1. The publisher can selectively switch off the rights of some prospects without thereby altering the rights of all prospects.

20

Downloading the application

If a prospect decides to purchase the application, the purchase becomes effective within the next few minutes without any need to modify the prospect's local configuration. The publisher can transform a demonstration version into a client version without effort. Only a few minutes are required to enable the server 4 to use the download means 4h to download the missing portion of the code to the machine of a prospect who has become a client. This transformation is technically transparent for the client: the application can now find locally that which it previously had to execute on the publisher's remote server.

35 Receiving and sending messages

The user rights tracker also makes it possible to

consult OMC messages and to send information to the users of products.

The server 4 is installed in addition to an Internet-accessible server. It has identification means 5 4f which enable it to monitor the users 1 of the products. It keeps a user database 4g up to date.

Each user 1 must have a license to use the application. The administrator of the system can freely allocate licenses to a user within the limits of the rights possessed by that user, as represented by tokens 10 stored in a memory of the server 4.

In particular, the evaluation version can be used only if the access rights of a prospect are valid. The access rights of a user are defined by the publisher when 15 generating the evaluation version, and they are automatically verified on connection to the remote server. A variety of types of limit can be managed by the invention. For example: a limit as a function of time and a limit as a function of a number of uses.

CLAIMS

1/ A method creating a link between at least one user (1) and a publisher (2) of digital entities (in particular software, files, compact disks, video disks, etc. ...)

5 that are reproducible by computer and/or electronic means; said digital entities being initially designed for use or execution solely on a single piece of user computer equipment;

said method comprising the following steps:

10 - a step (3) of subdividing said digital entity into two portions, a first portion and a second portion, neither of which portions can be run without the other;

- a step of storing said first portion in a memory zone (4a) of a server (4) connected to a computer network (5a, 5b);

15 - a step of transmitting said second portion to at least one user (1) having computer equipment (6) including computer means for implementing said second portion;

20 - a step of installing (6a) said second portion on said computer equipment (6);

- a step (7) of connecting said computer equipment to said computer network (5b); and

25 - a step of establishing (4d, 6b) a functional link between said first portion and said second portion;

whereby, when said second portion is put into operation, it automatically makes a connection via the computer network to said server in order to execute the said missing first portion as stored in said server.

30

2/ A method according to claim 1, such that it further comprises:

- a step of exchanging information relating to said digital entity by means of said functional links;

35 whereby a community of users exchanging information is established.

3/ A method according claim 1 or claim 2, such that it further comprises:

- a step of controlling (4e) access to said server; whereby a user can access said first portion and use said digital entity only if the user possesses access rights.

4/ A method according to claim 3, such that it further comprises:

- a step of controlling and limiting access to said server to a limited period of time and/or to a limited number of uses and/or to an approved population of users; whereby the user can make use of such digital entity in full only during an evaluation stage and/or any stage agreed to with the publisher.

5/ A method according to any one of claims 1 to 4, such that it further comprises:

- a step of identifying (4f) the user on making a connection to said server; and
- a step of storing (4g) identifiers specific to said user; whereby the publisher of said digital entity can reference clients, in particular potential clients of said digital entity.

6/ A method according to any one of claims 1 to 5, such that it further comprises:

- a step of analyzing (3a) events linked with using said digital entity, in particular the succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage;
- whereby the publisher has available a panel of users who can co-operate in testing the digital entity; and

whereby the publisher of said digital entity can determine the degree of client satisfaction, in particular of potential clients.

5 7/ A method according to any one of claims 1 to 5, such that it further comprises:

- a step of downloading (4h) the first portion of said digital entity into the computer equipment of the user;

10 whereby a user who has decided to acquire said digital entity can immediately have it available locally.

8/ A system creating a link between at least one user (1) and a publisher (2) of digital entities (in particular software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means; said digital entities being initially designed for use or execution solely on a single piece of user computer equipment;

20 said system comprising the following steps:

- partitioning computer means (3) for subdividing said digital entity into two portions, a first portion and a second portion, neither of which can be used without the other;

25 - a server (4) connected to a computer network (5a, 5b), said server (4) having a memory zone (4a) in which said first portion is stored;

- transmission means (5a, 5b) for transmitting said second portion to at least one user (1) having computer equipment (6) including computer means for implementing said second portion;

- installation means (6a) for installing said second portion on said computer equipment (6);

35 - connection means (7) for connecting said computer equipment to said computer network (5b); and

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- computer means (4d, 6b) for establishing a functional link between said first portion and said portion;

whereby, when said second portion is put into operation, it automatically makes a connection via the computer network with said server to execute said missing first portion stored in said server.

9/ A system according to claim 8, such that:

10 - the computer means (4d, 6b) for establishing a functional link between said first portion and said second portion comprise communications means for exchanging information concerning said digital entity; whereby a community of users interchanging
15 information is established.

10/ A system according to claim 7 or claim 8, such that it further comprises:

- control means (4e) for controlling access to said
20 server; whereby a user can access said first portion and use said digital entity only if the user possesses access rights.

25 11/ A system according to claim 10, such that the control means (4e) further comprise limitation means for limiting access to said server to a limited period of time and/or to a limited number of uses and/or to an approved population of users;

30 whereby the user can use said digital entity in full only during an evaluation stage and/or any other stage agreed with the publisher.

12/ A system according to any one of claims 8 to 11, such
35 that it further comprises:

- identification means (4f) for identifying the user when connected to said server; and

- storage means (4g) for storing identifiers specific to said user;

whereby the publisher of said digital entity can reference clients, in particular potential clients of
5 said digital entity.

13/ A system according to claim 12, such that said server includes said identification means (4f) and said storage means (4g).

10

14/ A system according to any one of claims 8 to 13, such that it further comprises:

- computer analysis means (3a) for analyzing events linked with using said digital entity, in particular the
15 succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage;

whereby the publisher has available a panel of users
20 who can co-operate in testing the digital entity; and

whereby the publisher of said digital entity can determine the degree of client satisfaction, in particular with potential clients.

25 15/ A system according to any one of claims 8 to 14, such that it further comprises:

- downloading means (4h) in particular situated in said server, for downloading the first portion of said digital entity into the computer equipment of a user;

30 whereby a user who has decided to acquire digital entity can immediately have it available locally.

16/ A server creating a link between at least one user (1) and a publisher (2) of digital entities (in
35 particular software, files, compact disks, video disks, etc. ...) that are reproducible by computer and/or electronic means; said digital entities being initially

designed for use or execution solely on a single piece of user computer equipment (6);

said server (4) being connected to a computer network (5a, 4b);

5 said server comprising the following steps:

- computer means for using a first portion of the digital entity in co-operation with a second portion used on the user's computer equipment (6);

10 - a memory zone (4a) in which said first portion is stored; and

- computer means (4d) for establishing a functional link between said first portion and said second portion;

whereby, on said second portion being put into

operation, it automatically makes a connection via the computer network with said server to execute said missing first portion stored in said server.

17/ A server according to claim 16, such that:

- the computer means (4d) for establishing a functional link between said first portion and said second portion comprise communications means for exchanging information relating to said digital entity;

whereby a community of users exchanging information is established.

18/ A server according to claim 16 or claim 17, such that it further comprises:

- control means (4e) for controlling access to said server;

whereby a user can access said first portion and use said digital entity only if the user possesses access rights.

19/ A server according to claim 18, such that the control means (4e) further comprise limitation means for limiting access to said server to a limited period of time and/or

to a limited number of uses and/or to an approved population of users;

whereby a user can use said digital entity in full only during an evaluation stage and/or during any stage 5 agreed with the publisher.

20/ A server according to any one of claims 16 to 19,
such that it further comprises:

such that it further comprises:

- identification means (4f) for identifying the user
- on connecting to said server; and
- storage means (4g) for storing identifiers

specific to said user;

whereby the publisher of said digital entity can reference clients, in particular potential clients of said digital entity.

21/ A server according to any one of claims 16 to 20,
such that it further comprises:

such that the computer analysis means (3a) for analyzing events associated with using said digital entity, in particular the succession of events during installation, the frequency with which a function of said digital entity is used, the frequency with which said digital entity is used during an evaluation stage;

25 whereby the publisher has available a panel of users
who can co-operate in testing the digital entity; and

whereby the publisher of said digital entity can determine the degree of client satisfaction; in particular of potential clients.

22/ A server according to any one of claims 16 to 21,
such that it further comprises:

- downloading means (4h) for downloading the first portion of said digital entity into the computer equipment of the user;

whereby a user who has decided to acquire said digital entity can immediately have it available locally.

1/1

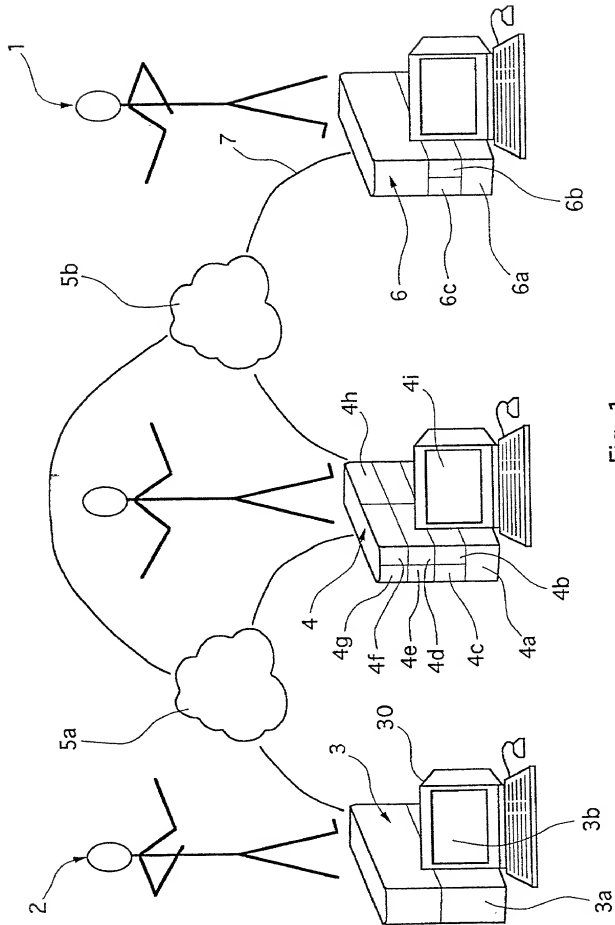


Fig. 1

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

A METHOD OF CREATING A LINK BETWEEN A PUBLISHER AND USERS.

the specification of which: (check one)

REGULAR OR DESIGN APPLICATION

☐ is attached hereto.

☐ was filed on _____ as application Serial No. _____ and was amended on _____ (if applicable).

PCT FILED APPLICATION ENTERING NATIONAL STAGE

February 17, 2000 ☒ was described and claimed in International application No. PCT/FR00/00406 filed on _____ and as amended on _____ (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

PRIORITY CLAIM

I hereby claim foreign priority benefits under 35 USC 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

PRIOR FOREIGN APPLICATION(S)

Country	Application Number	Date of Filing (day, month, year)	Priority Claimed
FRANCE	99 02139	17/02/1999	YES

(Complete this part only if this is a continuing application.)

I hereby claim the benefit under 35 USC 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 USC 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status—patented, pending, abandoned)

POWER OF ATTORNEY

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorney or agent named herein will be so notified by the undersigned.

As a named inventor, I hereby appoint the registered patent attorneys represented by Customer No. **000466** to prosecute this application and transact all business in the Patent and Trademark Office connected therewith, including: **Robert J. PATCH, Reg. No. 17,355, Andrew J. PATCH, Reg. No. 32,925, Robert F. HARGEST, Reg. No. 25,590, Benoit CASTEL, Reg. No. 35,041, Thomas W. PERKINS, Reg. No. 33,027, Roland E. LONG, Jr., Reg. No. 41,949 and Eric JENSEN, Reg. No. 37,855.**

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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(given name, family name)

Inventor's signature _____ Date _____

Residence:

Citizenship:

Post Office Address:

Full name of sixth joint inventor, if any:
(given name, family name)

Inventor's signature _____ Date _____

Residence:

Citizenship:

Post Office Address:

[illegible]

7. 1. 1971